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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,697	10/21/2003	Omer Dokumaci	FIS920020134U2	2696
29371	7590	07/28/2004	EXAMINER	
CANTOR COLBURN LLP			NOVACEK, CHRISTY L	
55 GRIFFIN ROAD SOUTH			ART UNIT	
BLOOMFIELD, CT 06002			PAPER NUMBER	

2822

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,697

Applicant(s)

DOKUMACI ET AL.

Examiner

Christy L. Novacek

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/21/03, 10/27/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the communication filed October 21, 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 rejected under 35 U.S.C. 102(e) as being anticipated by Forbes et al. (US 6,372,618).

Regarding claim 1, Forbes discloses forming a lower polysilicon region (108) on a gate dielectric layer (106), implanting the lower polysilicon region with a dopant at a first dopant concentration, forming a conductive barrier layer (110) upon the lower polysilicon region, forming an upper polysilicon region (120) on the conductive barrier layer and implanting the upper polysilicon region with a dopant at a second dopant concentration such that the second dopant concentration is different from the first dopant concentration (Fig. 4; col. 5, ln. 22 – col. 6, ln. 39).

Regarding claim 2, Forbes discloses forming a silicide layer on the upper polysilicon region (col. 6, ln. 40-48).

Regarding claim 3, Forbes discloses that the conductive barrier may be made of TiN (col. 5, ln. 33-35).

Allowable Subject Matter

Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reason for the indication of the allowable subject matter of claim 4 is the inclusion therein, in combination as currently claimed, of the limitation of having a doped lower layer including SiGeC being covered with a conductive barrier layer, which is in turn covered by a polysilicon layer having a doping concentration different than that of the lower layer. This limitation is found in claim 4 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowable subject matter of claim 5 is the inclusion therein, in combination as currently claimed, of the limitation of doping the lower polysilicon region 1×10^{21} atoms/cm³ and doping the upper polysilicon region 3×10^{20} atoms/cm³. This limitation is found in claim 5 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowable subject matter of claim 6 is the inclusion therein, in combination as currently claimed, of the limitation of forming the lower polysilicon region by forming a polysilicon block, forming a sacrificial layer over the polysilicon block, planarizing the sacrificial layer and recessing the polysilicon block below the top of the sacrificial layer. This limitation is found in claim 6 and is neither disclosed nor taught by the prior art of record, alone or in combination.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Chen et al. (US 6,737,320) disclose a lower polysilicon region implanted with a first dopant concentration, a dielectric barrier layer on the lower polysilicon region and an upper polysilicon region having a dopant concentration different than that of the lower polysilicon region on top of the barrier layer.

Mizushima et al. (US 6,713,359) disclose a lower polysilicon region implanted with a first dopant concentration, a conductive barrier layer on the lower polysilicon region and an upper polysilicon region having a dopant concentration different than that of the lower polysilicon region on top of the barrier layer.

Noble et al. (US 6,573,169) disclose a lower doped polysilicon region, a conductive barrier layer on the lower doped polysilicon region and an upper polysilicon region on the conductive barrier layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLN

July 25, 2004



AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
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